4WD-RCRA

SUBJ: Evaluation of the status of Kerr McGee-Hamilton under the RCRIS Corrective Action Environmental Indicator Event Codes (CA725 and CA750)
EPA I.D. Number: MSD 007 025 117

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I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of the status of Kerr McGee-Hamilton in relation to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS):

1) Human Exposures Controlled Determination (CA725),

2) Groundwater Releases Controlled Determination (CA750).

Concurrence by the RCRA Enforcement and Compliance Branch Chief is required prior to entering these event codes into RCRIS. Your concurrence with the interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing above. See Memorandum Attachment 1 for more specific information of the RCRIS definitions for CA725 and CA750.

II. HISTORY OF ENVIRONMENTAL INDICATOR EVALUATIONS AT THE

FACILITY AND REFERENCE DOCUMENTS

This particular evaluation is the first evaluation performed by EPA for Kerr McGee-Hamilton. The evaluation, and associated interpretations and conclusions on contamination, exposures and contaminant migration at the facility, is based on information obtained from the following documents:

- August 30, 1996 Final Consent Agreement and Compliance Order;
- June 16, 1995 RCRA Facility Assessment;
- July 23, 1998 RCRA Confirmatory Sampling Report; and
- November 1997 Confirmatory Sampling Work Plan.

III. FACILITY SUMMARY

Kerr McGee-Hamilton is located ½ mile southwest of New Hamilton, Mississippi, and two miles from the Sulfur Springs School. The facility uses 30 acres of 2,600 acres for various manufacturing processes. Manufacturing processes include the production of titanium dioxide, sodium chlorate, and manganese metals. Prior to 1979, the pesticide methyl parathion was also produced at this facility. The facility uses approximately 260 acres for a surface pond system that is used as a series of settling ponds for contact and non-contact process waters. The remaining acreage is undeveloped Kerr McGee property.

The land use surrounding the facility includes sparse residential, minor commercial, and predominately agricultural. Small property owners do exist on the north, south and east of the facility property. The facility is bond on the south and southwest by the Tombigbee River and land managed by the U.S. Army Corps of Engineers. Six offsite groundwater wells are located near the north boundary of the site. The Kerr McGee property also encompasses wetlands along the western and southern portions of the site and along McKinley Creek (Please see attached facility map). The majority of the property is outside the 100-year flood plain. However, part of the west side of the property near Dose Maie Creek is within the 100-year flood plain.

Currently, the facility operates as a small quantity generator. The hazardous wastes generated at this facility include:

- waste paint and solvents (D001, F003, and F005);
- laboratory clean-up solvents (D001, D035, F002, F005);
- waste paint sample vials (D001, D035, F002, F005);
- fiberglass clean-up solvent and still bottoms (D001, D035, F002, F005;
- waste acidic ethylene glycol solution (D002);
- inorganic alkaline liquid (D002);
- petroleum naptha (D001, D018, D039);
- used batteries (D006);
- used mercury-containing lamps and ballasts (D009); and
- waste chlorinated solvents (F001).

These hazardous wastes are stored either at the point of generation or at the Hazardous Waste Storage Building.

IV. CONCLUSION FOR CA725: NO

As more fully explained in Memorandum Attachment 2, because human exposures to all contamination are not currently controlled at Kerr McGee-Hamilton, it is recommended that CA725 NO be entered into RCRIS as of September 30, 1998.

V. CONCLUSION FOR CA750: YE

Groundwater contamination exists at Kerr McGee-Hamilton at concentrations above maximum contaminant levels (MCLs). There are control measures present at the facility which control the physical migration of contaminated groundwater beyond the facility property line. Therefore, it is recommended that CA750 YE be entered into RCRIS as of September 30, 1998.

VI. SUMMARY OF FOLLOW-UP ACTIONS

Currently, the facility is operating under an EPA Final Administrative Order on Consent, dated August 30, 1996. The facility agreed to perform corrective action under this order. This corrective action includes confirmatory sampling, any necessary interim measures to stabilize immediate threats to human health and the environment, a RCRA Facility Investigation, a corrective measures study, and implementation of the corrective measure selected by EPA and the facility. This memorandum is based primarily on the results of the confirmatory sampling report. Following EPA's review of the confirmatory sampling report the facility will continue with corrective action by beginning the RCRA Facility Investigation to define the extent of contamination. In the course of this RCRA Facility Investigation the status of surface water and air contamination will be addressed. All contamination will be addressed through this investigation, the corrective measure study, and the implementation of corrective measures.

MEMORANDUM ATTACHMENT 1

A. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)

There are five (5) national status codes under CA725. These status codes are:

1) YE Yes, applicable as of this date [i.e., human exposures are controlled as of this date].

2) NA Previous determination no longer applicable as of this date.

3) NC No control measures necessary.

4) NO Facility does not meet definition [i.e., human exposures are not controlled as of this date].

5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

Note that CA725 is designed to measure human exposures over the entire facility (i.e., the code does not track SWMU specific actions or success). Every area at the facility must meet the definition before a YE or NC status code can be entered for CA725. The NO status code should be entered if there are current unacceptable risks to humans due to releases of hazardous wastes or hazardous constituents from any SWMU(s) or AOC(s). The IN status code is designed to cover those cases where insufficient information is available to make an informed decision on whether or not human exposures are controlled. If an evaluation determines that there are both unacceptable and uncontrolled current risks to humans at the facility (NO) along with insufficient information on contamination or exposures at the facility (IN), then the priority for the EI recommendation is the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NC status codes. In other words, YE, NC, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA725. Therefore, it is Region 4's opinion that only YE, NC, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

B. GROUNDWATER RELEASES CONTROLLED

DETERMINATION (CA750)

There are five (5) status codes listed under CA750:

1) YE Yes, applicable as of this date [i.e., groundwater releases are controlled as of this date].

2) NA Previous determination no longer applicable as of this date.

3) NR No releases to groundwater.

4) NO Facility does not meet definition [i.e., groundwater releases are not controlled as of this date].

5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

The status codes for CA750 are designed to measure the adequacy of actively (e.g., pump and treat) or passively (e.g., natural attenuation) controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The designated boundary (e.g., the facility boundary, a line upgradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.) is the point where the success or failure of controlling the migration of hazardous constituents is measured for active control systems. **Every contaminated area at the facility must be evaluated and found to have the migration of contaminated groundwater controlled before a "YE" status code can be entered.**

If contaminated groundwater is not controlled in any area(s) of the facility, the NO status code should be entered. If there is not enough information at certain areas to make an informed decision as to whether groundwater releases are controlled, then the IN status code should be entered. If an evaluation determines that there are both uncontrolled groundwater releases for certain units/areas (NO) and insufficient information at certain units/areas of groundwater contamination (IN), then the priority for the EI recommendation should be the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NR status codes. In other words, YE, NR, NO and IN cover all of the scenarios possible

in an evaluation or reevaluation of a facility for CA750. Therefore, it is Region 4's opinion that only YE, NR, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

MEMORANDUM ATTACHMENT 2

MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

GROUNDWATER

Groundwater at this facility is contaminated onsite and plausible onsite and/or offsite human exposures are controlled by several interim measures. The following discussion is based primarily on information provided by the facility in the Confirmatory Sampling Report.

Releases from SWMUs have contaminated groundwater at concentrations above MCLs. The facility recently completed confirmatory sampling, which is the first step of corrective action at this facility. This investigation determined that there are a few constituents of concern in the groundwater at the facility. The existence and the full extent of the plumes will be determined during the RCRA Facility Investigation. The constituents of concern that were both above background levels and MCLs included:

- arsenic at 0.067 mg/l, 0.12 mg/l and 0.074 mg/l;
- tetrachloroethene at 51 : g/l;
- beryllium at 0.0076 mg/l; and
- thallium at 0.014 mg/l.

The MCLs for each of these constituents are as follows:

- arsenic, 0.05 mg/l;
- tetrachloroethene, 5.0 mg/l;
- beryllium, 0.004 mg/l; and
- thallium, 0.002 mg/l.

These levels were detected in groundwater samples taken throughout the facility property. The aquifer that is potentially impacted is the terrace deposit aquifer, which yields water that is sufficient for domestic and farm use in this area.

There are plausible onsite and/or offsite human exposures to the groundwater contamination. The groundwater flow in the terrace deposit aquifer is west with localized flow northwest and southwest from the ponds found on the west side of the site. Dose Maie Creek drains most of the facility and could be impacted by the above noted constituents. Dose Maie Creek is also a tributary to McKinley Creek, which could also be impacted. Another exposure possibility is through the domestic and farm use of groundwater from the terrace deposit aquifer. This groundwater could be contaminated with the above noted constituents, which might impact humans using this groundwater for domestic purposes. Also, the use of this groundwater on farms as drinking water for animals or to irrigate crops could impact animals or humans and the

environment, respectively. On the west and south sides of the facility there are wetlands that could also be impacted by receipt of contaminated groundwater.

The facility has taken several steps to control groundwater contamination onsite. Historically, Pond 6 (SWMU 13) was an unlined surface impoundment that received manganese contaminated process waste waters. Solids were allowed to settle out of the wastewater and the water was re-circulated into the process. During the RCRA Facility Assessment it was determined that seepage was occurring from this SWMU, which was evidenced by the presence of stressed vegetation. Several inorganic constituents were determined to be leaking into the terrace deposits, moving southeast, and discharging to the North Ditch (SWMU 5C). The facility constructed a French under-drain system in 1987 to lower the groundwater table below the ditch and thereby prevent the discharge to the North Ditch. However, this system does not control the migration of contaminants that are moving to the southeast and below the elevation of the French drain. The facility also put a recovery well system in place at this pond. This system creates a hydraulic barrier and prevents migration of impacted groundwater away from Pond 6 in the northwest direction. This system has been in operation since the fall of 1993. The facility is currently in the process of closing this pond. As of June 1998 the pond had been de-watered, the sediment had been stabilized, a synthetic liner was installed, and a clay cap was installed. A surface water collection system drains storm-water runoff to the drainage ditch on the west side of the pond.

The other SWMUs of concern are the Pigment Ponds (SWMUs 6, 8, 9, 11, 12, 14, 15, and 17). These SWMUs were unlined surface impoundments that received process waste waters. Visual seepage from the pond embankments has been observed and is evidenced by stressed vegetation. The facility has constructed three interim measures to control groundwater contamination related to these ponds and other ponds throughout the site that are interconnected to these ponds. First, a slurry wall was put in place south of SWMU 11 in 1992. This wall prevents flow of contaminated offsite. Second, a French drain was installed west of SWMU 11 in mid-1993. This French drain is used to redirect the underflow of contaminated groundwater to a sump that pumps the groundwater back into the pond system or redirects it toward the slurry wall. Third, a horizontal well system was installed along the northwest and west side of the Pigment Ponds. This system is to capture contaminated groundwater and create a hydraulic barrier in order to prevent groundwater from entering Dose Maie Creek or the wetlands.

Based on the above Option 3 discussion, plausible human exposures to groundwater contamination are controlled.

SOIL

Soil is contaminated onsite and some plausible onsite and/or offsite human exposures are not controlled. Soil at the facility is contaminated at concentrations above soil screening levels. The facility recently completed confirmatory sampling, which is the first step of corrective action at this facility. This investigation determined that there are a few constituents of concern in the soils and sediments at the facility. The existence and the full extent of this contamination will be

determined during the RCRA Facility Investigation. The constituents of concern that were both above background levels and soil screening levels include:

- beryllium at 0.69 mg/kg, 2.6 mg/kg, 1.7 mg/kg and 0.75 mg/kg;
- acetone at 250 : /kg;
- selenium at 5.9 mg/kg;
- thallium 1.5 mg/kg and 4.6 mg/kg;
- antimony 13 mg/kg and 5.5 mg/kg; and
- chromium 2,800 and 1,200 mg/kg.

The soil screening levels determined for each of these constituents are as follows:

- beryllium, 0.2 mg/kg;
- acetone, 16 mg/kg;
- selenium, 5.0 mg/kg;
- thallium, 0.70 mg/kg;
- antimony, 5.0 mg/kg; and
- chromium, 38.0 mg/kg.

These levels were detected in soil and sediment samples taken throughout the facility property. The facility is not entirely fenced and is therefore accessible to the public. Because of this, humans could be impacted by this contaminated soil. Also, facility employees could be impacted during daily activities onsite. These plausible human exposures are not controlled. However, the information regarding soil contamination is incomplete at this point in time. The RCRA Facility Investigation will define the extent of contamination and the Corrective Measures Study will evaluate the options available to address this contamination.

Based on the above discussion, plausible human exposures to contaminated soil are not controlled and control measures could be necessary.

SURFACE WATER

A decision on human exposures to contamination in the surface water cannot be made because there is insufficient information on the quality of surface water onsite and offsite at this facility. Information on the presence or absence of surface water contamination is insufficient or lacking at certain areas of the facility. These areas of the facility correspond to locations where surface water contamination could be present given near-by SWMUs, facility operations or land use, etc. No data is available regarding surface water contamination. Surface water may have been impacted in the past due to storm water runoff or seepage from various SWMUs as discussed above.

Because of the uncertainty regarding the presence or absence of surface water at the facility, an opinion on plausible human exposures to surface water contamination is not possible at this time.

AIR

Air is reasonably expected not to be contaminated. Releases to air from soil, groundwater and/or surface water contaminated by SWMUs and/or AOCs at the facility is not known to be occurring at concentrations above relevant action levels.

Therefore, there is no human exposure to contamination via an air route.

Table 1: Summary Table for Use in Selecting the Proper Status Code for CA725

OPTION	Media				STATUS CODE IF ALL MEDIA FALL UNDER THE SAME OPTION	STATUS CODE FOR SPECIFIC FACILITY
	Ground-water	Surface Water	Soil Sediment	Air		
1. Media not contaminated[1]					NC	
2. The media is contaminated and cleanup standards met to the point of controlling plausible human exposures					YE (1A)	
3. The media is contaminated [onsite and/or offsite] and all plausible [onsite and/or offsite] human exposures are controlled by [Stabilization/IM and/or Access Controls][2]	X	X			YE (1B)	
4. The media is contaminated [onsite and/or offsite] and some plausible human exposures are not controlled[3]			X		NO	
5. A decision on human exposures to contamination cannot be made because there is insufficient information on media quality[3]					IN	
6. A decision on human exposures to contamination cannot be made because there is insufficient information on plausible human exposures[3]				X	IN	

FOOTNOTES:

[1] If there is not enough concrete information available for an easy determination as to whether or not a medium is contaminated, then, a judgement must be made contamination can be reasonably expected given the site-specific nature of facility's operational history. If a reasonable assumption on contamination cannot b environmental media, then a CA725 determination cannot be made.

[2] Stabilization/Interim Measures and/or Access Controls which account for all exposures in all media at the facility will be covered under this option. In additio covers, etc., Access Controls can include those specific cases where human exposures to onsite contamination are restricted due to a lack of human receptors (groundwater is contaminated but there are no onsite drinking water wells and the facility recognizes that drinking water wells should not be installed). With reg that has migrated offsite, plausible human exposures cannot be considered controlled unless tangible control measures have been implemented to prevent huma offsite contamination.

[3] If an evaluation determines that there are <u>both</u> unacceptable current risks to humans for certain media (NO) and insufficient information for certain media (IN), the EI recommendation should be the NO status code.

MEMORANDUM ATTACHMENT 3 -
FACILITY MAP